RADICAL PROSTATECTOMY AND QUALITY OF LIFE AMONG AFRICAN AMERICANS

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Prostate-specific antigen screening has led to an increase in the number of men who present with localized prostate cancer. Patients must engage in decision-making regarding treatment, which is influenced by several factors including patient age at diagnosis, tumor stage, and co-morbidities. Among those patients who decide to undergo potentially curative treatment, quality of life is extremely important. However, quality of life among men with prostate cancer has not been studied extensively compared to other sites. The proposed study addressed the quality of life in 100 African American men who underwent radical prostatectomy. The men had a mean age of 63.7 ± 7.5 and mean age at diagnosis of 59.7 ± 6.9 years. The most common problems or symptoms were erection failure (84.7%), urinary incontinence and frequency (63.3%), pain 54.1%, and fatigue 53.1%. Problems with either sleep or appetite were recorded by 39.8%, and psychological problems related to sadness, worry, nervousness, or feeling of loneliness were reported by 32.6%. Problems most often reported by patients as being moderate to severe in intensity were sex life (67.3%), sexual dysfunction (55.7%), erection (50.0%), and urination frequency (40.8%). These data present patient perception of adverse quality of life outcomes after prostatectomy and underscore the importance of considering both their short- and long-term expectations of treatment options. (*Ethn Dis*. 2006;16:988–993)

Key Words: African Americans, Incontinence, Prostate Cancer, Quality of Life, Radical Prostatectomy, Sexual Dysfunction

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INTRODUCTION

Radical prostatectomy is the gold standard for treatment of localized prostate cancer, although other treatment modalities exist.[1] Among men who undergo radical prostatectomy, the primary complication is impotence.[2,3] Impotence occurs in 20%–50% of those men receiving nerve-sparing procedures.[4,5] Approximately 15%–20% of patients experience stress incontinence, and <2% experience permanent incontinence after undergoing nerve-sparing procedures.[6] Levels of incontinence range from 30% to 70% one year after diagnosis and treatment. Fatigue and decrease in physical function are often reported in patients with advanced disease.[7]

A primary symptom associated with metastatic disease, which occurs in 50%–75% of patients, is pain.[8–11] Among 40%–55% of patients with advanced disease, fatigue and decreased physical function are reported.[9,10] The elimination of testosterone by surgery or medical hormonal therapy results in decreased sexual interest and function. In addition, patient's quality of life is affected by impotence and hot flashes.[5,11–13]

Prostate-specific antigen (PSA) screening has led to an increase in the number of men who present with localized prostate cancer. Patients must engage in decision-making regarding treatment, which is influenced by several factors, including patient by age at diagnosis, tumor stage, and co-morbidities.[14–16] Among those patients who decide to undergo potentially curative treatment, quality of life is extremely important.[1] However, quality of life among African American men with prostate cancer has not been studied extensively compared to other sites.

The effect of radical prostatectomy on the quality of life of African American men has been understudied. The effect of this treatment must be assessed in relationship to sexual dysfunction, urinary incontinence, pain, fatigue, sleep, appetite, and psychological symptoms. The present study addresses the quality of life of African American men who have had radical prostatectomy. In particular, we addressed: 1) the types of prostatectomy-related symptoms associated with adverse effects of quality of life; 2) the domains of quality of life most affected by symptoms; and 3) predictors of quality of life.

METHODS

African American men who had undergone prostatectomy for the treatment and management of histologically diagnosed adenocarcinoma of the prostate between 1989 and 1999 in a community-based urology practice were invited to participate in this cross-sectional study. They were all initially informed about the study by telephone followed by a letter. The staff from the doctor's office scheduled willing participants for an interview with the investigator at the doctor's office. Those who could not schedule an office visit were scheduled for a telephone interview. Patients who initially could not be reached by telephone or were unable to keep their interview appointments were contacted by a second mailing that included the questionnaire and a self-addressed, stamped envelope. Of the 142 African American patients contacted, 100 (70.4%) consented to take

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part in the study. Institutional review board (IRB) approval was obtained for this study, and informed consent was obtained from each participant at the beginning of the interview, before they completed the questionnaires. All medical data, such as digital rectal examination (DRE), initial and follow-up results of PSA tests, bone scan, and histology, were extracted from the patient's medical records. In addition, age at diagnosis, years since prostatectomy, histology review, and Surveillance, Epidemiology, and End Results (SEER) stage of prostate cancer were ascertained from the medical records.

Survey Instruments: Functional Assessment of Cancer Therapy-Prostate (FACT-P)

The first section of the study questionnaire addressed general demographics such as education, marital status, occupation, employment, annual income, medical history, family history of prostate cancer and other cancers, smoking pattern, and alcohol use history. The second section of the survey was the FACT-P, a disease-specific quality of life instrument for prostate cancer patients and an outgrowth of the Functional Assessment of Cancer Therapy-General (FACT-G) scale.[17–19] The FACT-G is a reliable and validated instrument that has 33 items in five subscales: physical well-being, social-family well-being, relationship with doctor, emotional well-being, and functional well-being. The FACT-P has an additional subscale, additional concerns, with 12 items that address specific quality-of-life issues in men with prostate cancer. Additional information addressed coping and quality-of-life issues.

Every item on this questionnaire was rated on a five-point scale from "not at all" to "very much so." Positive items such as "I am able to enjoy life in general" were analyzed as recorded by the respondent; 0 for "not at all," 1 for "a little bit," to 4 for "very much so." Negative items such as "I lack energy" were reversed such that "not at all" earned 4 points and "very much so" earned 0 as the quality-of-life score. Subscale scores were computed by adding the scores of all the items in that subscale, and the overall quality-of-life score was computed by adding all the scores of all the subscales.

Pain, fatigue, sexual dysfunction, and urinary problems are not measurable subscales of the FACT-P, but these symptoms were addressed within the subscales such that the symptom concerns were computed by averaging the aggregate scores on items that addressed them on the FACT-P. Pain was computed from four items, fatigue from three items, sex life from six items, and urinary problems from three items. Patients were more likely to answer all the items on the FACT-P section of the questionnaire and failed to address direct questions on past medical history regarding the diagnosis of sexual dysfunction and urinary incontinence, which made responses on the FACT-P more reliable for analysis. Patients were grouped by symptom such that group 1 were those who scored 0 or 1, no symptoms – mild symptoms, and group 2 scored 2–4, moderate – severe symptoms. The score for negative items on the questionnaire such as "I have nausea," was used unchanged, while the score for positive items such as "I am satisfied with my sex life," was reversed to score symptoms.

Missing data were managed by prorating all subscale scores (including additional concerns subscale) so long as at least half of the items were answered.

$$\text{Prorated subscale score} = \frac{[\text{sum of item scores}] \times [N \text{ of items in subscale}]}{[N \text{ of items answered}]}$$

Participants with overall response rate ≥80% or greater were included in subsequent quality-of-life analysis.

Statistical Analysis

The data were entered into SPSS 12.0 (SPSS Inc, Chicago, Ill) for analysis. Descriptive statistics were used to analyze the frequency of demographic variables and symptoms. General quality of life measures (FACT-G), prostate-specific quality of life (FACT-P), and all subscale measures were handled in the same way. Because patients with metastases were few and did not differ markedly from those with regional disease, they were grouped together. Patients with local disease were then compared to all others by using t test for quality-of-life measures and chi-square test for other discrete measures. Pearson correlation was used to ascertain the relationship between the various quality-of-life subscales and between FACT-G and FACT-P scores.

The independent sociodemographic variables of interest were education, employment, income, and marital status. Other independent variables were prostate cancer stage, history of stroke, diabetes, hypertension, prostatitis, and hypercholesterolemia. The dependent variables were pain, fatigue, sexual dysfunction, and measures of quality of life. Regression analysis was used to determine the predictors of pain, fatigue, each of the quality-of-life subscale measures, and prostate-specific quality-of-life measures. Age was entered into the model as a continuous variable. To reduce the size of the standard errors in the analysis, the independent variables were recoded into two levels before they were entered into the various models, by using backward regression.

Table 1. Study characteristics of African American radical prostatectomy patients

Variables	%
Age (years)	
<50	3.0
50–59	28.0
60–69	47.0
70–79	20.0
80–89	2.0
Age at diagnosis (years)	
<50	6.0
50–59	43.0
60–69	45.0
70–79	6.0
Marital status	
Married	82.0
Separated/divorced	11.0
Widowed	6.0
Single	1.0
Employment	
Full-time	35.0
Part-time	12.0
Retired	51.0
Unemployed/disability	2.0
Educational status	
Less than high school	20.6
High school	27.8
Some college	18.6
College graduate	20.6
Advanced degree	12.4
Annual income	
<$10,000	4.3
$10,000–$24,999	19.4
$25,000–$49,999	34.4
$50,000–$99,999	37.6
>$100,000	4.3
PSA at baseline (ng/mL)	
<4	11.0
4–9.9	53.0
10–19.9	16.0
>20	18.0
Unknown	1.0
Gleason score	
2–4	10.0
5–6	42.0
35.0	
8–10	12.0
Unknown	1.0
Years since prostatectomy	
<1	21.0
2–2.9	16.0
3–4.9	48.0
>5	15.0
Histology	
Well differentiated	66.0
Moderately differentiated	27.0
Poorly differentiated	5.0
Unknown	2.0
Stage (SEER)	
Local	77.0
Regional	21.0
Metastatic	2.0

RESULTS

The distributions of sociodemographic and other independent variables are shown in Table 1. Participants and non-participants were similar in age, age at cancer diagnosis, PSA level at diagnosis, Gleason score, and stage of disease at surgery.

As shown in Table 2, pain was reported by 54.1% of the patients and fatigue by 53.1%. The most common problems or symptoms reported by the patients were sexual dysfunction or erection failure, 84.7%, urinary incontinence and/or frequency, 63.3%. Problems with either sleep or appetite were reported by 39.8%, and psychological problems related to sadness, worry, nervousness or feelings of loneliness were reported by 32.6%. Depicted in Table 3 is the frequency of symptoms and problems distributed by severity. Problems most often reported by patients as being moderate to severe in intensity were sex life (67.3%), sexual dysfunction (55.7%), erection failure (50.0%), and urination frequency (40.8%).

Table 2. Frequency of symptoms and problems in African American men after radical prostatectomy (*N*=100)

Symptoms/Problems	Frequency (%)
Erection failure	84.7
Urinary incontinence and frequency	63.3
Pain	54.1
Fatigue	53.1
Sleep and appetite	39.8
Psychological problems	32.6

Table 3. Frequency of problems reported by African American men after radical prostatectomy by severity of symptoms

	Severity of Symptoms*	
Symptoms/Problems	Mild %	Moderate-Severe %
Sex life	27.6	67.3
Erection failure	14.0	50.0
Sexual dysfunction	–	55.7
Urination (combined)	29.6	33.7
Frequency	16.3	40.8
Incontinence	–	21.7
Pain	42.9	11.2
Fatigue	27.6	25.5
Sleep/appetite (combined)	12.2	27.6
Sleep	11.5	15.6
Appetite	12.2	13.3
Psychological (combined)	17.3	15.3
Sadness	10.2	9.2
Worry	5.1	9.2
Loneliness	2.0	8.2
Co-morbidity	59.2	20.4

* Mild response categories 1–2; moderate-severe response categories 3–4.

† Co-morbidity: number of self-reported health conditions; 1 or 2 conditions = mild; ≥3 conditions = moderate-severe.

Table 4. Mean quality-of-life scores among African Americans after radical prostatectomy

Measure	No. of Items	Range of Scores	Mean ± SD
FACT-G	28	67.0–111	96.1 ± 11.45
FACT-P	40	90.8–158	134.4 ± 15.97
Prostate concerns	12	15.0–48	38.3 ± 6.74
Physical	7	1–28	25.5 ± 4.05
Functional	7	0–28	24.6 ± 5.06
Social/family	7	8–28	20.5 ± 4.65
Emotional	5	4–20	18.1 ± 3.12
Doctor relationship	2	0–8	7.4 ± 1.46

FACT-G=general quality-of-life score (physical well-being + emotional well-being + social/family well-being + functional well-being + relationship with doctor); FACT-P=prostate cancer-specific quality-of-life score (general quality-of-life score + prostate cancer subscale).

The mean quality-of-life scores are shown in Table 4. Correlation between the raw and prorated scores for the FACT-G and FACT-P was $r=.942$ and $r=.964$, respectively, $P<.01$. The quality-of-life scores were ranked such that the third tertile included those with the best scores, and the first tertile included those with the poorest scores. Forty percent of those patients with local disease were in the third tertile of FACT-P scale compared to 13.0% of those with regional disease, $P<.06$. The distribution of FACT-G scores was not significantly different by disease stage.

The significant predictors of patients' quality of life are shown in Table 5. Pain and fatigue were both predicted by older age at diagnosis, more advanced disease stage, and longer duration since prostatectomy. Pain was significantly inversely associated with relationship with doctor and functional well-being, while fatigue was inversely predicted by emotional well-being. Physical well-being was the only independent predictor of emotional well-being, $P<.000$, and it was not a predictor of either pain nor fatigue. The percentage variance explained by these variables for emotional well-being, fatigue, and pain were 33%, 43%, and 34%, respectively.

Table 5. Significant predictors of patients' pain, fatigue, and emotional well-being (EWB): reporting beta weights of linear regression analysis

Predictors	Pain	Fatigue	EWB
Adjusted R^2	.34	.43	.33
Constant	1.63	5.74*	2.55
Marital status	—	—	—
Employment status	—	—	—
EWB	—	−.11*	NA
RWD	−.09‡	—	—
Annual income	—	—	—
SWB	—	—	—
PCS	NA	−.04*	—
FWB	−.04†	—	—
PWB	—	—	.27*
Age at diagnosis	.68†	.51	—
Age	—	—	—
Stage	.33‡	.35‡	—
Years since prostatectomy	.06‡	.09‡	—
Level of formal education	—	—	—

* $P<.000$; † $P<.01$; ‡ $P<.05$.

EWB=emotional well-being; RWD=relationship with doctor; SWB=social well-being; PCS=prostate cancer subscale; FWB=functional well-being; PWB=physical well-being.

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DISCUSSION

In this study of African American men who underwent radical prostatectomy, our findings indicated that sexual and urinary symptoms were significantly associated with radical prostatectomy in most men. This finding is consistent with the current literature that reveals that urinary and sexual functions were the most common disease-specific side effects among men treated by radical prostatectomy for prostate cancer.[20–24] Factors that can contribute to such high rates for urinary and sexual dysfunction will include presurgical degree of potency and urinary incontinence. While most participants indicated that they were continent of urine before surgery, >75% omitted responses regarding presurgical state of sexual potency.

Given the age at presentation, some degree of sexual dysfunction may have been present before surgery as expected, and some patients may have been in denial, refusing to comment on their presurgical potency status. This finding is particularly relevant because most patients who declined participation in this study had their surgery more than five years ago and were also not willing

to disclose to the physician's office staff their reason for refusing to discuss their quality of life after radical prostatectomy. This may have been the result of dissatisfaction with long-term persistence of adverse effects. A prospective study might be planned to evaluate patient long-term expectations of the quality-of-life outcomes of radical prostatectomy.

Albertsen et al[25] have demonstrated that irrespective of treatment, progressing disease is related to more bodily pain, less vitality/energy, and poorer social and emotional well-being than diseases in remission. In the current study, pain and fatigue were strongly associated with having had a radical prostatectomy. Pain and fatigue are physical symptoms that are frequently reported among many cancer patients in terms of prevalence as well as effect on functioning.[26,27] Older age at diagnosis, more advanced stage of disease, and longer duration since prostatectomy were significant predictors of both pain, and fatigue in these African American patients. Also demonstrated in the study was a high rate of co-morbidities such as stroke, diabetes, and hypertension; 20%–59% of the study population were affected by a single condition, and 51% reported two or more. These conditions could exacerbate the symptoms of pain, fatigue, and urinary and sexual dysfunction reported by these patients who underwent radical prostatectomy. Co-morbidities were also associated with increased physical symptoms as well as sleep and psychological problems. Sexual dysfunction in particular can be adversely affected both by these chronic conditions and by some medications.

A major limitation of this study is that quality-of-life measures were self-reported and were not collected before surgery to make for adequate before and after comparisons. Existing co-morbidities can inversely affect aspects of quality of life, especially the prostate-specific domains, making evaluating the effect of radical prostatectomy on sexual dysfunction difficult in a cross-sectional study design. The study is also limited by small sample size, and it was restricted to patients in a single urology practice. Long-term prostate cancer survivors are in the best position to rank the significance of potential adverse outcomes of their treatment. Decision-making is important to treatment and quality of life.[28] Every treatment for prostate cancer involves a risk-benefit tradeoff. Thus, clarifying how treatment decisions are made at the individual level is essential. One concern is the degree to which quality-of-life information, individual values, and personal priorities enter into decision-making. For most men in this study, physical and psychosocial quality-of-life domains were affected. Healthcare providers need to become more interested in knowing both the years added given a treatment and the quality of life of those added years. Therefore, healthcare providers must continue to address the physical and psychosocial issues associated with prostate cancer treatment when discussing the expectations and the potential side effects of the treatment with their patients. Equally important for quality-of-life assessment studies is the documentation of pre-surgical general and prostate cancer-specific quality-of-life measurement.

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